

WE CLAIM:

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1. A hand-held display system for playing video games, comprising:
 - 2 a housing grippable by a user's hands;
 - 3 a liquid crystal display viewable by the user gripping the housing;
 - 4 input devices operable by the user when the user grips the housing;
 - 5 a connector for, in use, operatively connecting to portable storage media storing video
 - 6 game programs for the video games;
 - 7 first processing circuitry for processing video game programs having a first program
 - 8 specification; and
 - 9 second processing circuitry for processing video game programs having a second program
 - 10 specification.
1. The hand-held display system according to claim 1, wherein the first program
- 2 specification is an 8-bit specification and the second program specification is a 32-bit specification.
3. The hand-held display system according to claim 1, wherein the input devices
- 4 comprise one or more first input devices arranged on one side of the liquid crystal display and one
- 5 or more second input devices arranged on the other side of the liquid crystal display, the first input
- 6 devices accessible using a thumb of one hand and the second input devices accessible using a
- 7 thumb of the other hand.
4. The hand-held display system according to claim 3, wherein the input devices
- 5 further comprise shoulder buttons at the upper corners of the housing, the shoulder buttons
- 6 accessible using the index fingers of the user's hands.
1. The hand-held display system according to claim 1, wherein the memory space of a
- 2 portable memory medium storing a video game program in accordance with the second program
- 3 specification is mapped to two or more memory spaces of the second processing circuitry each
- 4 having different access speeds.
1. The hand-held display system according to claim 5, further comprising:
 - 2 a register for setting individual access speeds for each of the memory spaces of the
 - 3 processing circuitry to which the memory space of the computer-readable medium is mapped.

1 7. The hand-held display system according to claim 6, wherein the register sets an
2 access speed in which a first access has 3 wait cycles and a second access has 1 wait cycle.

1 8. The hand-held display system according to claim 1, wherein the video game
2 program is stored in a ROM portion of the portable memory medium.

1 9. The hand-held display system according to claim 1, wherein the portable memory
2 medium is accessible both randomly and sequentially.

1 10. The hand-held display system according to claim 9, further comprising:
2 an address counter responsive to a memory read signal for counting up memory addresses
3 to sequentially access the computer-readable medium.

1 11. The hand-held display system according to claim 1, wherein the second processing
2 circuitry renders objects on one or more background screens on the liquid crystal display screen,
3 wherein the background screen is selectively rendered in one of a character format and a
4 bit-map format.

1 12. The hand-held display system according to claim 11, wherein the components of
2 the background screen are characters of 8 x 8 dots in the character format.

1 13. The hand-held display system according to claim 11, wherein each of the one or
2 more background screens has an associated display priority relative to the other background
3 screens.

1 14. The hand-held display system according to claim 11, wherein the objects are
2 rendered in the character format.

1 15. The hand-held display system according to claim 11, wherein each of the objects
2 has an associated display priority relative to the other objects.

1 16. The hand-held display system according to claim 1, wherein the first processing
2 circuitry comprises an n -bit bus controller and the second processing circuitry comprises a
3 multiplex bus controller and an n -bit bus controller.

1 17. The hand-held display system according to claim 16, wherein the n -bit bus
2 controller of the first processing circuitry comprises an 8-bit bus controller for accessing portable
3 memory media storing video game programs having the first program specification, the multiplex
4 bus controller of the second processing circuitry accesses first portions of portable memory media
5 storing video game programs having the second program specification, and the n -bit bus controller
6 of the second processing circuitry comprises an 8-bit bus controller for accessing second portions
7 of portable memory media storing video game programs having the second program specification.

1 18. A hand-held display system for playing video games, comprising:
2 a housing grippable by a user's hands;
3 a liquid crystal display viewable by the user gripping the housing;
4 input devices operable by the user when the user grips the housing;
5 a connector for, in use, operatively connecting to portable storage media storing video
6 game programs for the video games; and
7 processing circuitry for processing video game programs, and
8 wherein the liquid crystal display has first and second display formats for displaying images
9 generated by the processing circuitry.

1 19. The hand-held display system according to claim 18, wherein the first display
2 format is a wide-screen display format and the second display format is a non-widescreen display
3 format.

1 20. The hand-held display system according to claim 18, wherein the input devices are
2 operable to selectively switch between the first and second display formats.

1 21. A hand-held display system for playing a video game, comprising:
2 a housing grippable by a user's hands;
3 a liquid crystal display viewable by the user gripping the housing;
4 input devices operable by the user when the user grips the housing;
5 a connector for, in use, operatively connecting to a computer-readable medium having
6 stored thereon a video game program for the video game;
7 a first boot ROM storing code that is executed if the computer-readable medium is
8 determined to store a video game program of a first specification; and
9 a second boot ROM storing code that is executed if the computer-readable medium is
10 determined to store a video game program of a second specification.

1 22. The hand-held display system according to claim 21, wherein the first specification
2 is an 8-bit specification and the second specification is a 32-bit specification.

1 23. The hand-held display system according to claim 21, wherein the input devices
2 comprise one or more first input devices arranged on one side of the liquid crystal display and one
3 or more second input devices arranged on the other side of the liquid crystal display, the first input
4 devices accessible using a thumb of one hand and the second input devices accessible using a
5 thumb of the other hand.

1 24. The hand-held display system according to claim 23, wherein the input devices
2 further comprise shoulder buttons at the upper corners of the housing, the shoulder buttons
3 accessible using the index fingers of the user's hands.

1 25. The hand-held display system according to claim 21, further comprising:
2 a first processing circuit for processing a video game program of the first specification; and
3 a second processing circuit for processing a video game program of the second
4 specification.

1 26. A hand-held display system for playing a video game, comprising:
2 a housing grippable by a user's hands;
3 a liquid crystal display viewable by the user gripping the housing;
4 input devices operable by the user when the user grips the housing;
5 a connector for, in use, operatively connecting to a computer-readable medium having
6 stored thereon a video game program for the video game;
7 processing circuitry for processing the video game program,
8 wherein the memory space of the computer-readable medium is mapped to two or more
9 memory spaces of the processing circuitry each having a different access speeds.

1 27. The hand-held display system according to claim 26, further comprising:
2 a register for setting individual access speeds for each of the memory spaces of the
3 processing circuitry to which the memory space of the computer-readable medium is mapped.

1 28. The hand-held display system according to claim 27, wherein the register sets an
2 access speed in which a first access has 3 wait cycles and a second access has 1 wait cycle.

1 29. The hand-held display system according to claim 26, wherein the video program is
2 stored in a ROM portion of the computer-readable medium.

1 30. The hand-held display system according to claim 26, wherein the computer-
2 readable medium is accessible both randomly and sequentially.

1 31. The hand-held display system according to claim 30, further comprising:
2 an address counter responsive to a memory read signal for counting up memory addresses
3 to sequentially access the computer-readable medium.

1 32. A hand-held display system for playing a video game, comprising:
2 a housing grippable by a user's hands;
3 a liquid crystal display viewable by the user gripping the housing;
4 input devices operable by the user when the user grips the housing;
5 a connector for, in use, operatively connecting to a computer-readable medium having
6 stored thereon a video game program for the video game;
7 processing circuitry for processing the video game program to render objects on one or
8 more background screens on the liquid crystal display screen,
9 wherein the background screen is selectively rendered in one of a character format and a
10 bit-map format.

1 33. The hand-held display system according to claim 32, wherein the components of
2 the background screen are characters of 8 x 8 dots in the character format.

1 34. The hand-held display system according to claim 32, wherein each of the one or
2 more background screens has an associated display priority relative to the other background
3 screens.

1 35. The hand-held display system according to claim 32, wherein the objects are
2 rendered in the character format.

1 36. A cable for connecting a master hand-held display systems with a slave hand-held
2 display system, each of the master and slave hand-held display systems adapted for playing a video
3 game and comprising a housing grippable by a user's hands, a liquid crystal display viewable by the
4 user gripping the housing, input devices operable by the user when the user grips the housing, a
5 connector for, in use, operatively connecting to a computer-readable medium having stored
6 thereon a video game program for the video game, processing circuitry for processing the video
7 game program, and an interface for, in use, connecting to the cable, the cable comprising:

8 a first connector for connecting to the interface of the master hand-held display system;
9 a second connector for connecting to the interface of the slave hand-held display system;

10 and

11 a third connector for connecting to a connector of another cable,

12 wherein each of the master and slave hand-held display systems further comprise
13 communication circuitry for communicating data therebetween and between any additional slave
14 hand-held display systems connected to the third connector of the cable.

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